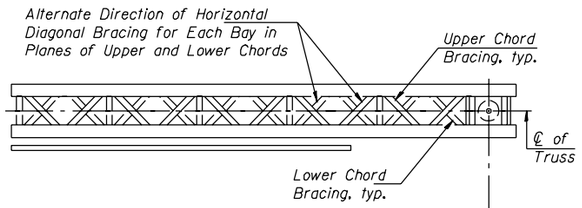
CELL / MODEL NAME	DESCRIPTION	DATE
OSC-S-1	General plan and elevation, steel truss and steel post	7/1/2006
OSC-S-2	Steel truss details and steel post	7/1/2006
OSC-S-D	Damping device	7/1/2006
OSC-S-3	Juncture details, steel truss and steel post	7/1/2006
OSC-S-4	Type I-C-S truss support	7/1/2006
OSC-S-5	Type II-C-S and III-C-S truss support, steel truss and steel post	7/1/2006
OSC-S-6	Steel walkway details, steel truss and steel post	7/1/2006
OSC-S-6S	Alternate steel walkway details, steel truss and steel post	7/1/2006
OSC-S-7	Walkway details, steel truss and steel post	7/1/2006
OSC-S-7S	Alternate steel walkway details, steel truss and steel post	7/1/2006
OSC-S-8	Handrail details, steel truss and steel post	7/1/2006
OSC-S-9	Drilled shaft foundation details	7/1/2006

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

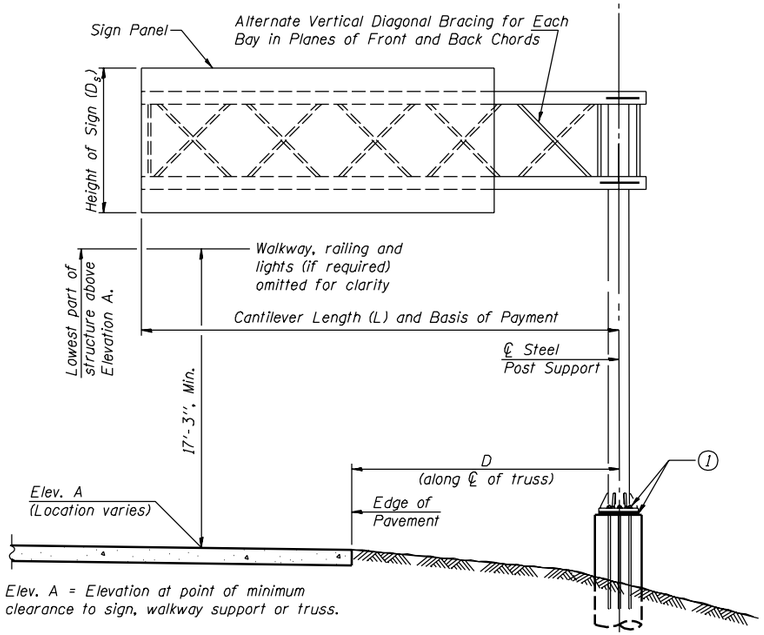
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - - SHEETS

Contract #



TYPICAL PLAN
(Walkway not shown)



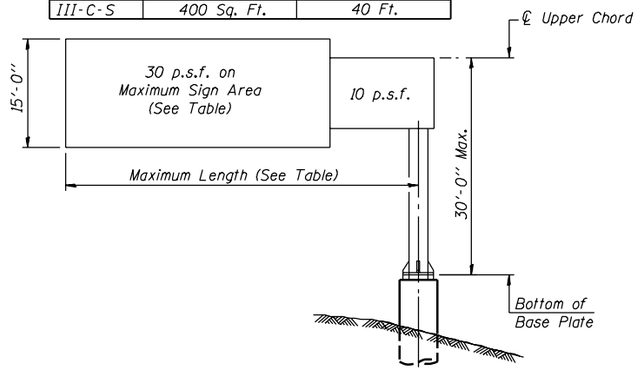
Elev. A = Elevation at point of minimum clearance to sign, walkway support or truss.

TYPICAL ELEVATION
Looking in Direction of Traffic

Sign support structures may be subject to damaging vibrations and oscillations when sign panels are not in place during erection or maintenance of the structure. To avoid these, attach temporary blank sign panels or other bracing to the structure until permanent signs are installed.

Structure Number	Station	Design Truss Type	Cantilever Length (L)	Elev. A	Dim. D	D_s	Total Sign Area

Truss Type	Maximum Sign Area	Maximum Length
I-C-S	170 Sq. Ft.	25 Ft.
II-C-S	340 Sq. Ft.	30 Ft.
III-C-S	400 Sq. Ft.	40 Ft.



DESIGN WIND LOADING DIAGRAM
Parameters shown are basis for I.D.O.T. Standards Installations not within dimensional limits shown require special analysis for all components.

(1) After adjustments to level truss and insure adequate vertical clearance, all top and leveling nuts shall be tightened against the base plate with a minimum torque of 200 lb.-ft. Stainless steel mesh shall then be placed around the perimeter of the base plate. Secure to base plate with stainless steel banding.

Note:
Trusses shall be shipped individually with adequate provision to prevent detrimental motion during transport. This may require ropes between horizontals and diagonals or energy dissipating (elastic) ties to the vehicle. The contractor is responsible for maintaining the configuration and protection of the trusses.

GENERAL NOTES

DESIGN: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals. ("AASHTO Specifications")

CONSTRUCTION: Current (at time of letting) Illinois Department of Transportation Standard Specifications for Road and Bridge Construction, Supplemental Specifications and Special Provisions. ("Standard Specifications")

LOADING: 90 M.P.H. WIND VELOCITY

WALKWAY LOADING: Dead load plus 500 lbs. concentrated live load.

ALLOWABLE UNIT STRESSES:
Structural Steel - 20,000 p.s.i.
Reinforcing Steel - 20,000 p.s.i.
Class SI Concrete - 1,400 p.s.i.

Allowable unit stresses due to wind load in combination with other forces, are increased 1.33

MINIMUM CLEARANCE: Vertical Roadway Clearance = 17'-3" (All Obstructions)

WELDING: All welds to be continuous unless otherwise shown. All welding to be done in accordance with current AWS D1.1 Structural Welding Code and the Standard Specifications.

MATERIALS: All Structural Steel Pipe shall be ASTM A53 Grade B with a minimum yield of 35,000 p.s.i., or A500 Grade B or C with a minimum yield of 46,000 p.s.i. If A500 pipe is substituted for A53, then the outside diameter shall be as detailed and wall thickness greater than or equal to A53.

All Structural Steel Plates and Shapes shall conform to AASHTO M270 Gr. 36, Gr. 50 or Gr. 50W* (M183, M223 Gr. 50 or M222). Stainless steel for handhole covers shall be ASTM A240, Type 302 or 304, or another alloy suitable for exterior exposure and acceptable to the Engineer.

The steel pipe and stiffening ribs at the base plate for the column shall have a minimum longitudinal Charpy V-Notch (CVN) energy of 15 lb.-ft. at 40° F. (Zone 2) before galvanizing.

FASTENERS FOR STEEL TRUSSES: All bolts noted as "high strength" (HS) must satisfy the requirements of AASHTO M164 (ASTM A325), ASTM A449, or an Engineer approved alternate, and must have matching lock nuts and washers. All bolts, u-bolts, eye bolts, lock nuts and washers not specified to be "high strength" must satisfy the requirements of ASTM A307 Gr. B. All lock nuts must have nylon or steel inserts. High strength bolt installation shall conform to Article 505.04 (f) (2)d of the Standard Specifications. Rotational capacity ("ROCAP") testing will not be required. All bolts, locknuts and washers must be hot dip galvanized per AASHTO M232.

GALVANIZING: All Steel Grating, Plates, Shapes and Pipe shall be Hot Dip Galvanized after fabrication in accordance with AASHTO M111.

ANCHOR RODS: Shall conform to AASHTO M314 Gr. 55 or 105 with a minimum Charpy V-Notch (CVN) energy of 15 lb.-ft. at 10° F.

CONCRETE SURFACES: All concrete surfaces above an elevation 6" below the lowest final ground line at each foundation shall be cleaned and coated with Bridge Seat Sealer in accordance with the Standard Specifications.

REINFORCEMENT BARS: Reinforcement Bars designated (E) shall be epoxy coated in accordance with the Standard Specifications.

FOUNDATIONS: The contract unit price for "Concrete Foundations" or "Drilled Shaft Concrete Foundations" shall include: All necessary excavation or drilling (except in rock); backfilling with excavated material; disposal of unsuitable or surplus material; formwork; and furnishing and placing the Class SI Concrete, reinforcement bars, conduit, anchor bolts, nuts, washers and ground rods complete in place.

* If M270 Gr. 50W (M222) steel is proposed, chemistry for plate to be used shall first be approved by the Engineer as suitable for galvanizing and welding.

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
OVERHEAD SIGN STRUCTURE CANTILEVER TYPE I-C-S	Foot	
OVERHEAD SIGN STRUCTURE CANTILEVER TYPE II-C-S	Foot	
OVERHEAD SIGN STRUCTURE CANTILEVER TYPE III-C-S	Foot	
OVERHEAD SIGN WALKWAY-CANTILEVER TYPE S	Foot	
DRILLED SHAFT CONCRETE FOUNDATIONS	Cu. Yds.	

CANTILEVER SIGN STRUCTURES
GENERAL PLAN & ELEVATION
STEEL TRUSS & STEEL POST

DESIGNED	-
CHECKED	-
DRAWN	-
CHECKED	-

- 200
EXAMINED
ENGINEER OF BRIDGE DESIGN
PASSED
ENGINEER OF BRIDGES AND STRUCTURES

NUMBER	REVISION	DATE

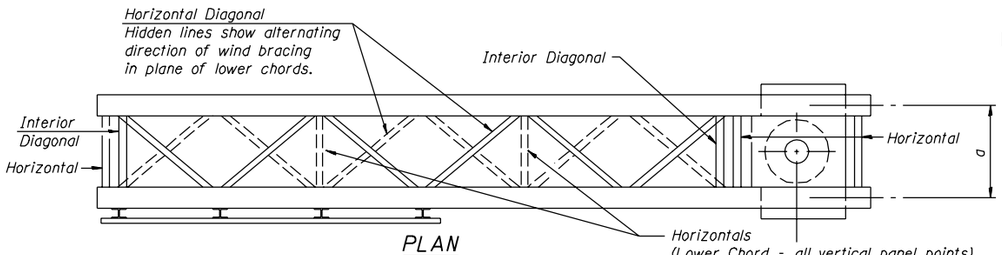
OSC-S-1 7/01/2006

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

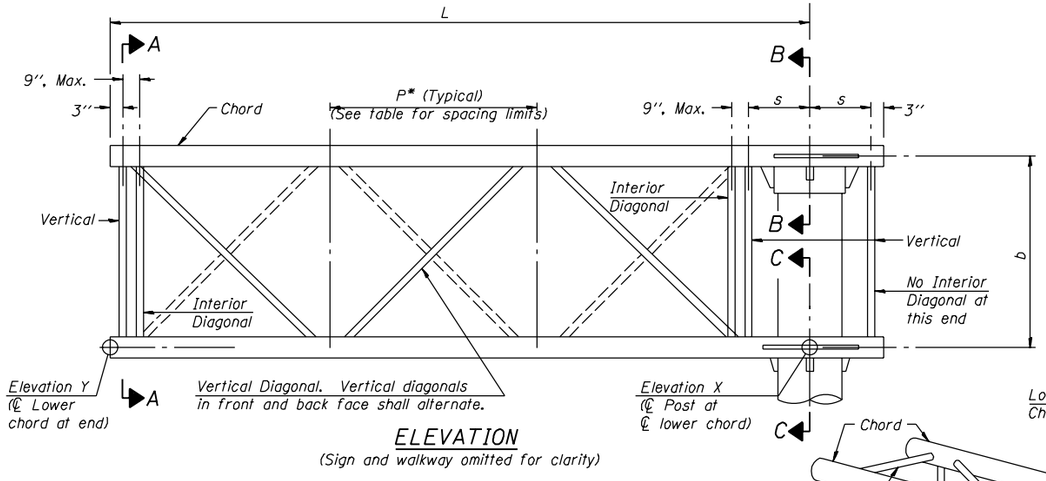
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

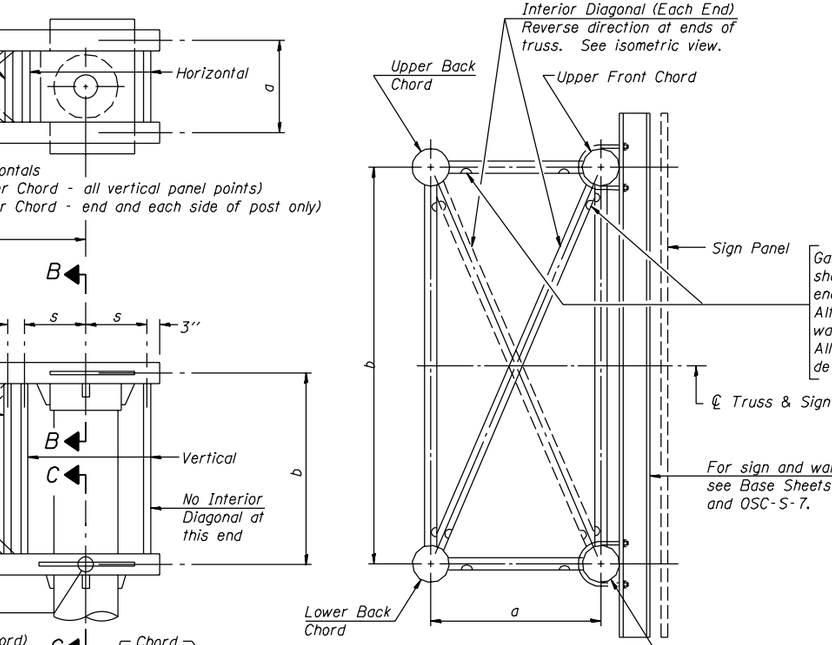
Contract #



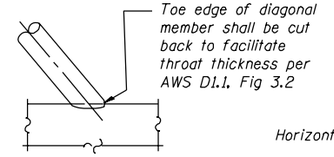
PLAN
(Walkway not shown)



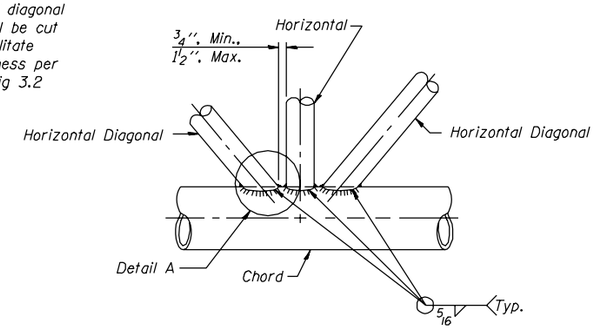
ELEVATION
(Sign and walkway omitted for clarity)



SECTION A-A



DETAIL A

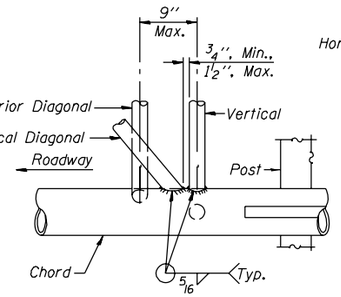


TRUSS INTERIOR JOINT DETAIL

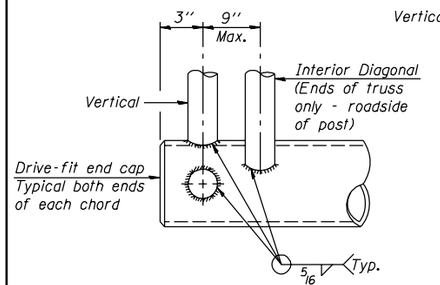
TYPICAL TRUSS UNIT

For Section B-B and Section C-C, see Base Sheet OSC-S-3.

Note:
There are twice as many horizontal diagonals as there are vertical diagonal.

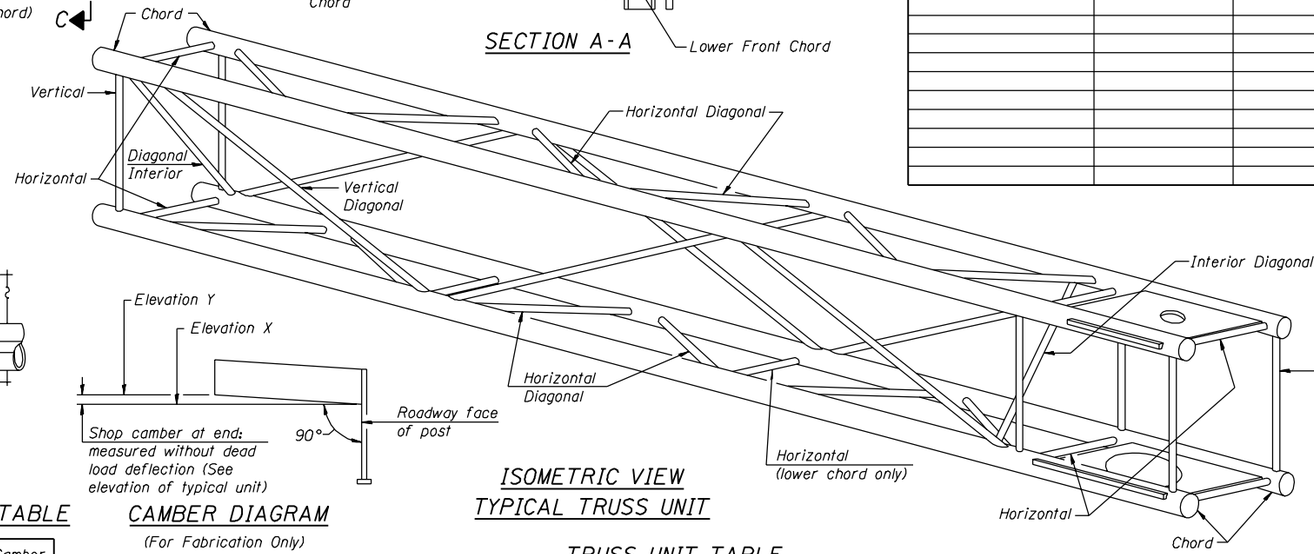


POST END JOINT DETAIL



CANTILEVER END JOINT DETAIL

** Contractor must use standard drive-fit cap to close ends. After galvanizing, drive-fit cap shall have 1/2" ϕ drain holes at low edge.



ISOMETRIC VIEW
TYPICAL TRUSS UNIT

CAMBER DIAGRAM
(For Fabrication Only)

SHOP CAMBER TABLE

Unit Length (L)	Shop Camber at End
15'	2 1/2"
16'-17'	2 3/4"
18'-20'	3"
21'-22'	3 1/4"
23'-25'	3 1/2"
26'-27'	3"
28'-30'	3 1/4"
31'-32'	3 1/2"
33'-35'	3 3/4"
36'-37'	5"
38'-40'	5 1/2"

TRUSS UNIT TABLE

Truss Type	Dimension "a"	Dimension "b"	Dimension "s"	Limits for Panel Spacing (P)*	Up. & Low. Chord O.D.	Up. & Low. Chord Wall	Verticals; Horizontals; Vertical, Horizontal, and Interior Diagonals O.D.	Verticals; Horizontals; Vertical, Horizontal, and Interior Diagonals Wall
I-C-S	24"	54"	16"	36" Min. to 48" Max.	5"	0.258"	2"	0.154"
II-C-S	36"	66"	21"	42" Min. to 54" Max.	6"	0.28"	2 1/2"	0.203"
III-C-S (35' Max.)	36"	84"	21"	48" Min. to 66" Max.	6"	0.344"	2 1/2"	0.203"
III-C-S (>35' to 40')	36"	84"	21"	48" Min. to 66" Max.	8"	0.322"	3"	0.216"

$*P = \frac{L - s - 3''}{\#\ Panels}$

Structure Number	Station	Truss Type	Design Length (L)	Number of Panels Per Unit	Panel Length (P)*

NUMBER	REVISION	DATE

CANTILEVER SIGN STRUCTURES
TRUSS DETAILS
STEEL TRUSS & STEEL POST

DESIGNED	-
CHECKED	-
DRAWN	-
CHECKED	-

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

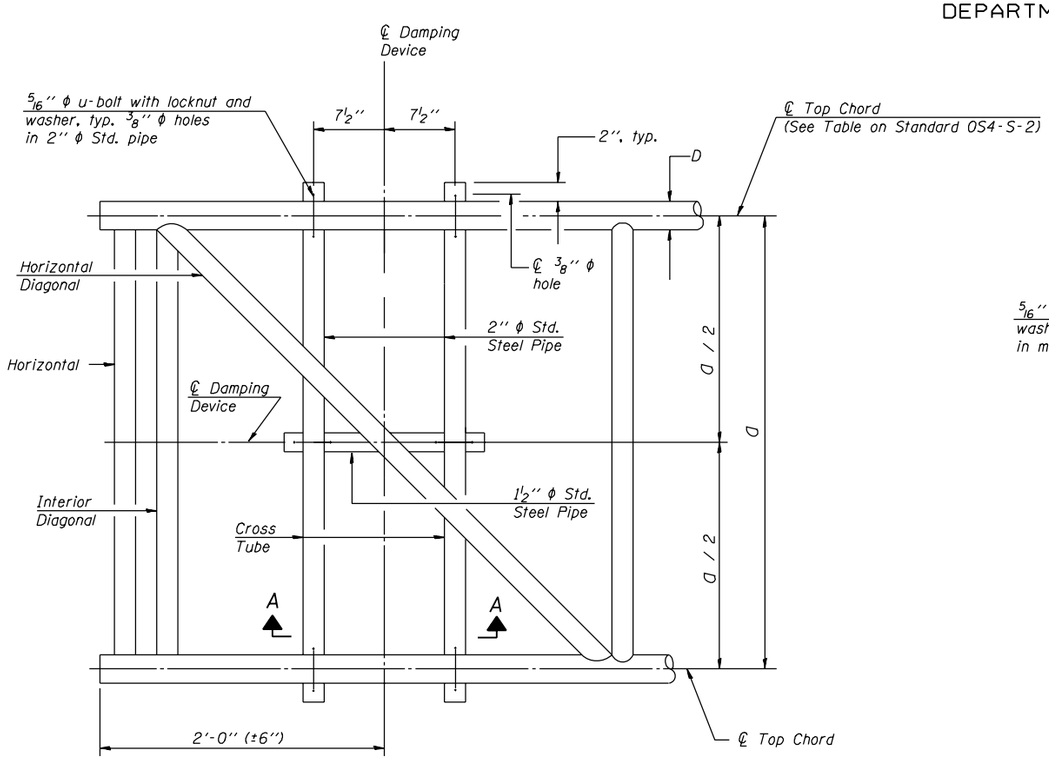
OSC-S-2 7/01/2006

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

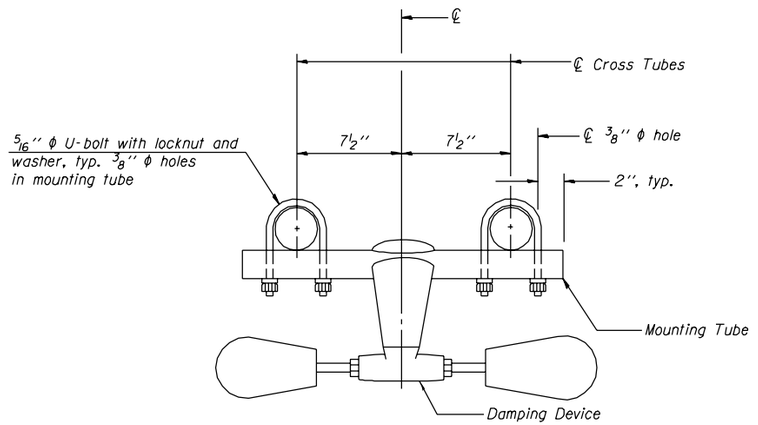
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

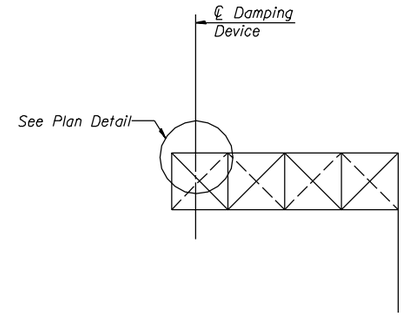
Contract #



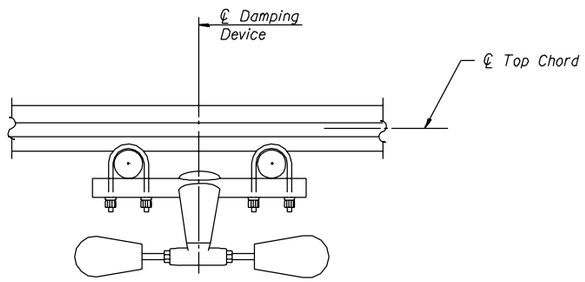
PLAN DETAIL



TRUSS DAMPING
DEVICE CONNECTION DETAIL



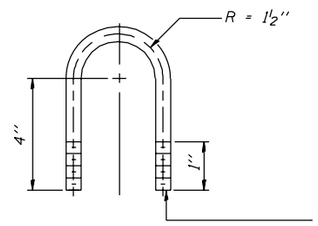
ELEVATION
Steel Cantilever
Sign Structure



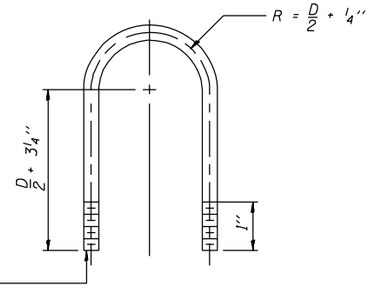
SECTION A-A

GENERAL NOTES

Damper: One damper per truss. (31 lbs. Stockbridge-Type)



DAMPING DEVICE MOUNTING
TUBE U-BOLT DETAIL
(Typical)



TOP CHORD TO CROSS TUBE
U-BOLT DETAIL
(Typical)

CANTILEVER SIGN STRUCTURE
DAMPING DEVICE

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

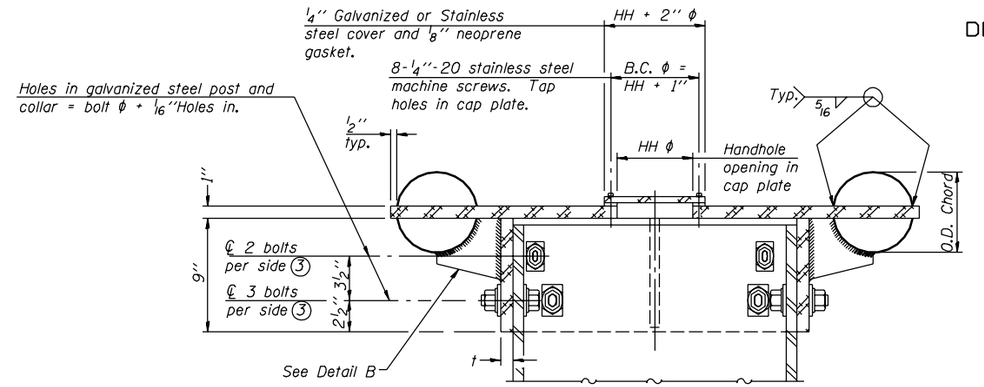
OSC-S-D 7/01/2006

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

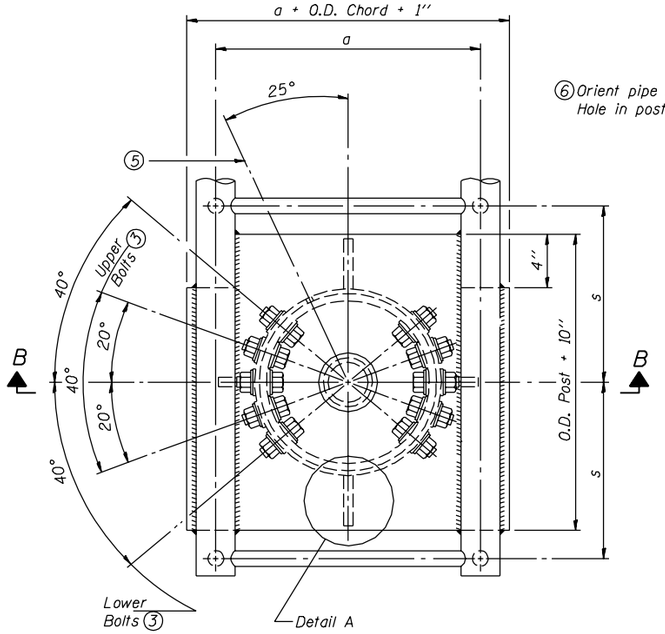
SHEET NO. - - SHEETS

Contract #



SECTION B-B

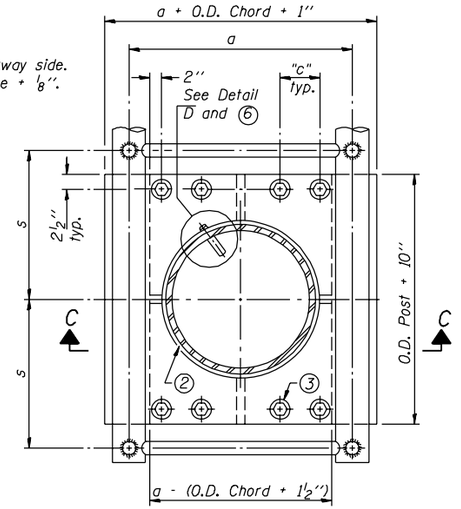
(4) After galvanizing. Collar I.D. shall equal O.D. of galvanized post plus 1/8" (±1/16") Maximum gap between post and collar at any location shall be 1/8" before tightening bolts.



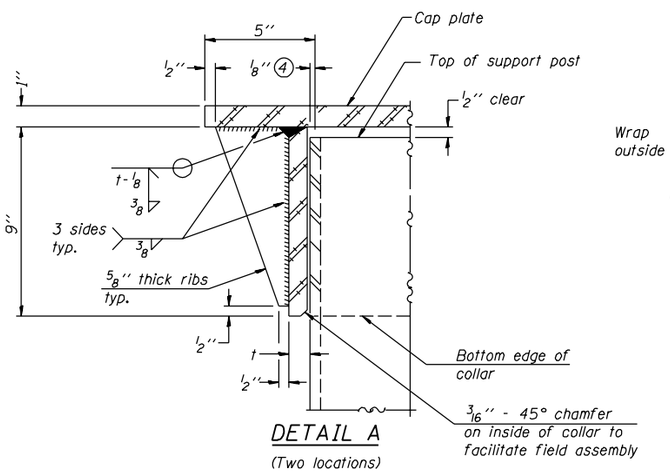
PLAN VIEW - TOP OF COLUMN

(5) Optional full penetration weld in collar. (Two locations maximum....(180° apart)....X-ray or UT 100%) All bolts shown are high strength

(6) Orient pipe toward walkway side. Hole in post = O.D. pipe + 1/8".

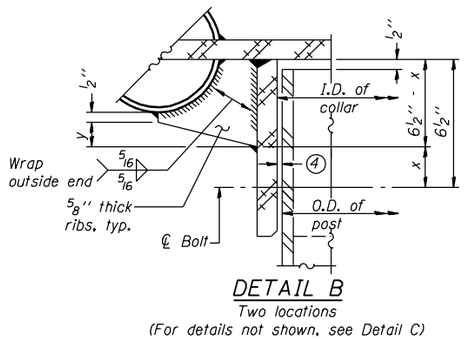


SECTION THRU POST ABOVE LOWER CHORDS



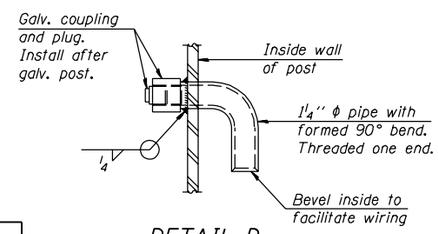
DETAIL A

(Two locations)

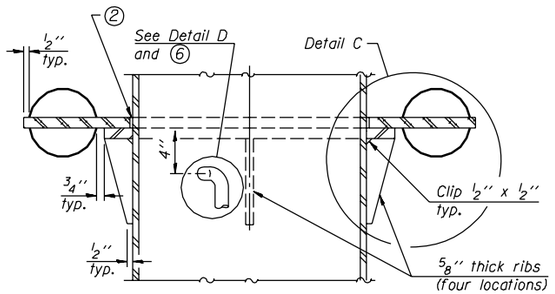


DETAIL B

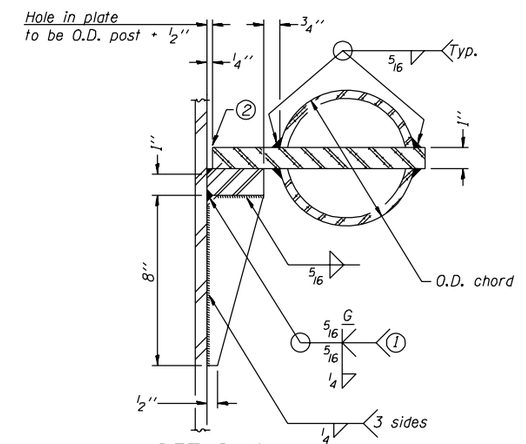
Two locations
(For details not shown, see Detail C)



DETAIL D



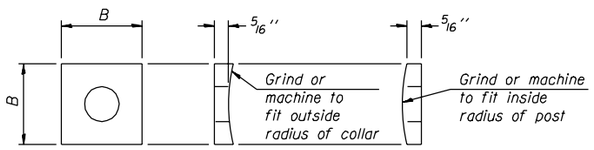
SECTION C-C



DETAIL C

(1) Grind top if required to fully seat plate. Repair damaged galvanizing before assembly.

(2) After tightening lower connection bolts, fill gap with non-hardening, silicone caulk suitable for exterior exposure and acceptable to the Engineer. Cost is included in Overhead Sign Structure Cantilever.



CONTOURED WASHERS

Bolt Size	Contoured Washers	
	Hole Dia.	B
7/8"	1"	2 3/4"
1"	1 1/8"	3"
1 1/4"	1 3/8"	3 1/4"

Truss Type	Post Size	Upper & Lower Connection Bolt Diameter (3)	Lower Juncture Bolt Spacing Dimension "c" (3)	Opening in Cap Plate "HH"	Collar Thickness (t)	Side Ribs	
						x	y
I-C-S	16" ϕ (107.5#/')	7/8"	3 1/4"	8"	5/8"	1 3/4"	2 1/4"
II-C-S	24" ϕ (125#/')	1"	3 1/2"	12"	7/8"	2"	1 1/4"
III-C-S (35' Max.)	24" ϕ (171#/')	1"	3 1/2"	12"	7/8"	2"	1"
III-C-S (>35' to 40')	24" ϕ (171#/')	1 1/4"	3 1/2"	12"	7/8"	2"	1"

(3) Upper and lower connection bolts in collar and bolts at lower chord connection must be high strength with matching lock nuts. Lower connection bolts must have 2 flat washers each.

CANTILEVER SIGN STRUCTURES
JUNCTURE DETAILS
STEEL TRUSS & STEEL POST

DESIGNED	-
CHECKED	-
DRAWN	-
CHECKED	-

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

NUMBER	REVISION	DATE

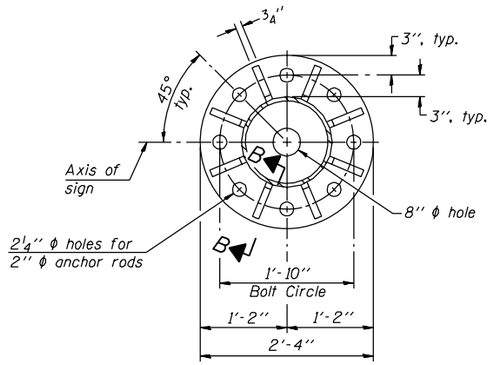
OSC-S-3 7/01/2006

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

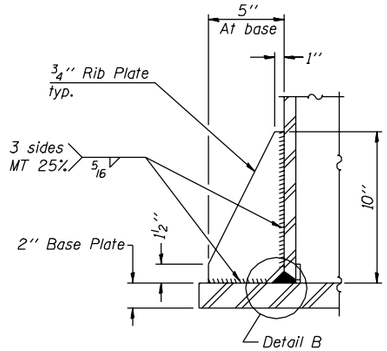
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

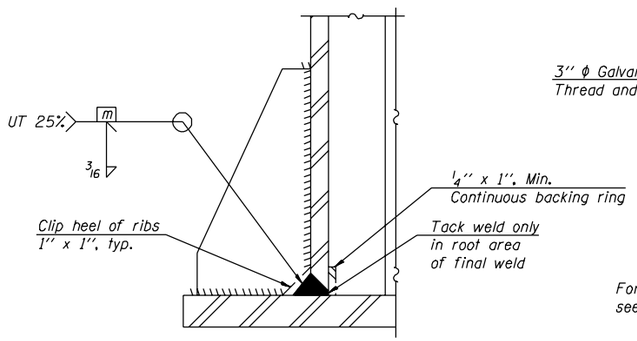
Contract #



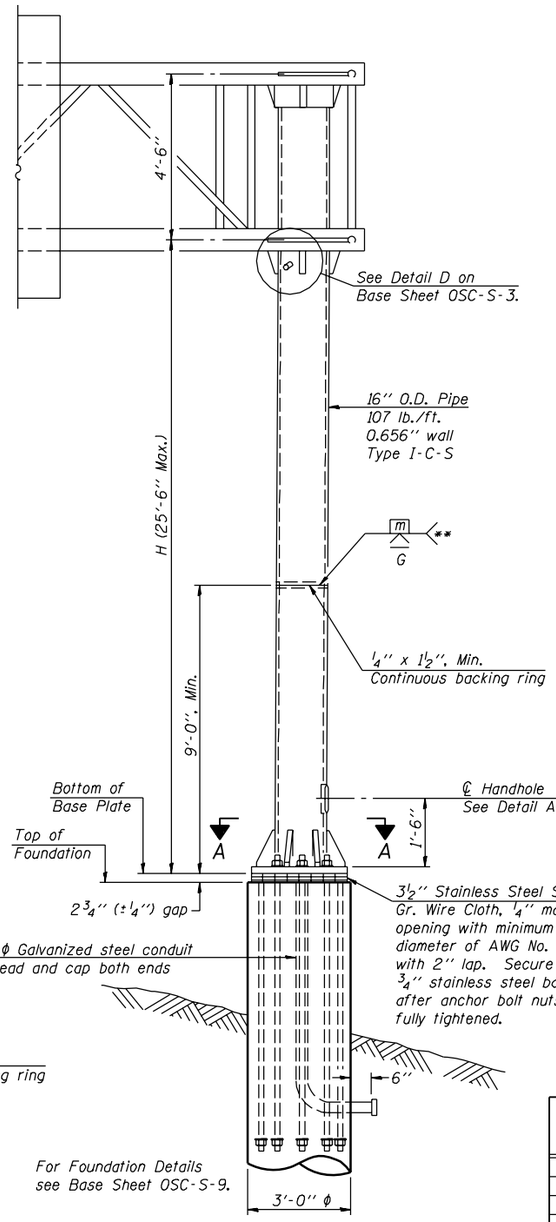
SECTION A-A



SECTION B-B

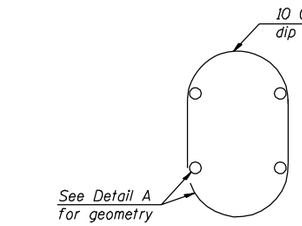


DETAIL B
(Typical rib)

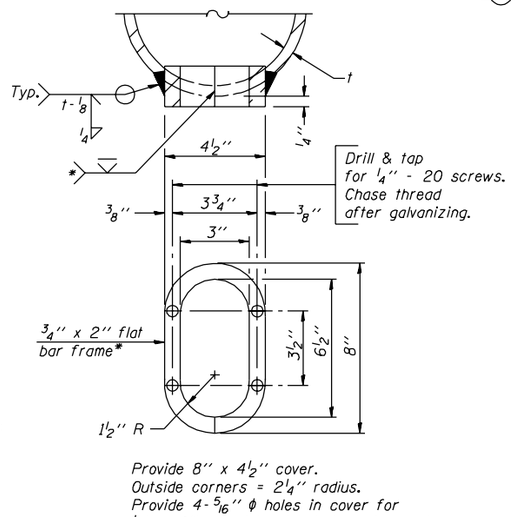


For Foundation Details see Base Sheet OSC-S-9.

FRONT ELEVATION



HANDHOLE COVER

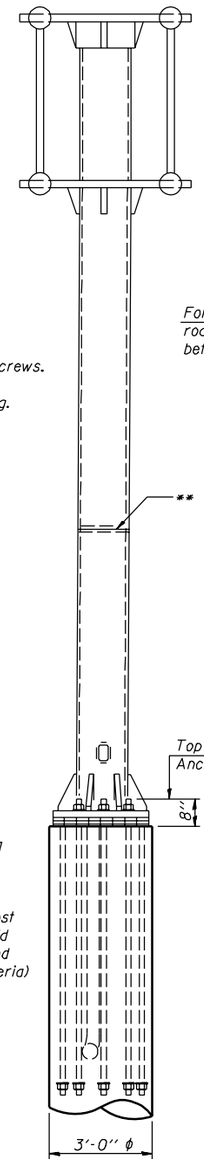


Provide 8" x 4 1/2" cover.
Outside corners = 2 1/4" radius.
Provide 4- 5/16" ϕ holes in cover for 1/4" - 20 round head hot dip galvanized or stainless steel machine screws.
(See cover details.)

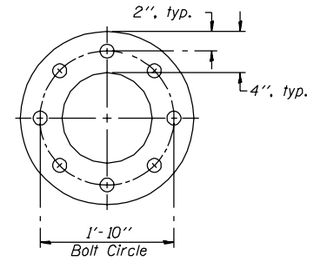
DETAIL A

* Bent bars may be butt welded top and bottom or bottom only. In lieu of fabricated handhole frame as shown, may cut from 2" plate (rolling direction vertical). All cut faces to be ground to ANSI Roughness of 500 μin or less.

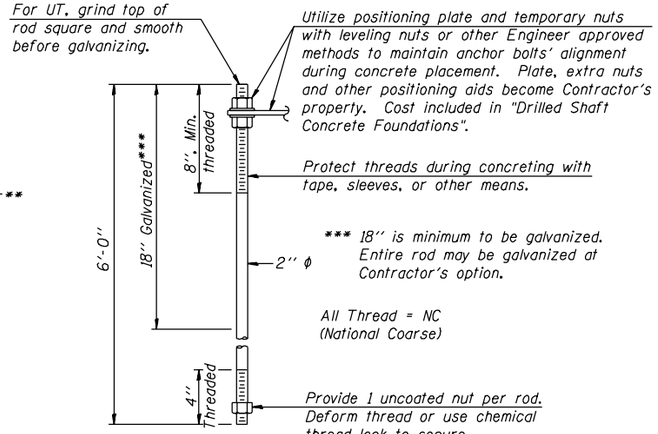
** Butt welded joint in post is only allowed for post heights (H) over 20 ft. in length. If used, weld procedure must be preapproved by Engineer and joint shall receive 100% RT or UT (tension criteria) at Contractor's expense.



SIDE ELEVATION



SUGGESTED POSITIONING PLATE



ANCHOR ROD DETAIL

Anchor rods shall conform to AASHTO M314 Grade 55 or 105 and meet Charpy V-Notch (CVN) energy of 15 lb.-ft. at 10° F. before galvanizing. Galvanize the upper 18" (minimum***) and associated M291, Grade A, C or DH heavy hex nuts and hardened washers per AASHTO M232. No welding shall be permitted on rods. Provide an unfinished nut at bottom, a hexagon locknut and washer above base plate and a leveling nut and washer below base plate. Nuts shall each be tightened with 200 lb.-ft. minimum torque against base plate. Before or after threading, but before galvanizing, each anchor rod shall be ultrasonically tested (UT) by a Level II or III inspector, qualified in accord with ANSI guidelines, using a straight beam, 1/2" ϕ 3.5 mhz. transducer, to insure no rejectable flaws exist in the upper 18" (tension criteria). Cost of testing included in Drilled Shaft Concrete Foundations.

Structure Number	Station	H

Note: "H" based on 15'-0" or actual sign height, whichever is greater.

NUMBER	REVISION	DATE

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

OSC-S-4 7/01/2006

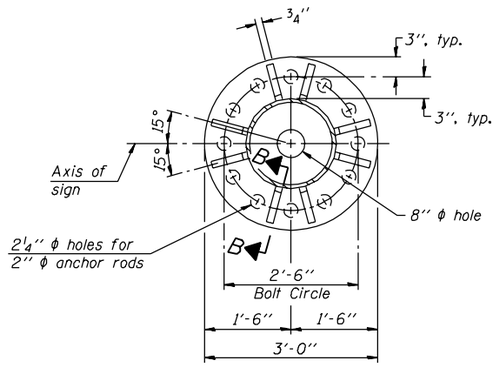
CANTILEVER SIGN STRUCTURES
TYPE I-C-S TRUSS SUPPORT POST
STEEL TRUSS & STEEL POST

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

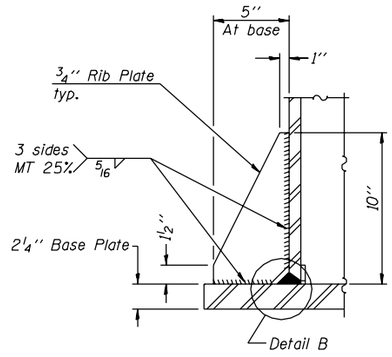
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

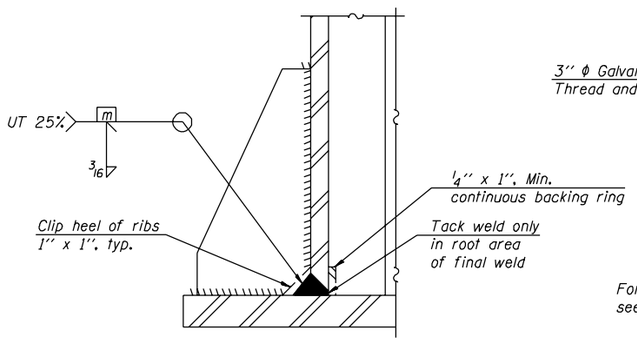
Contract #



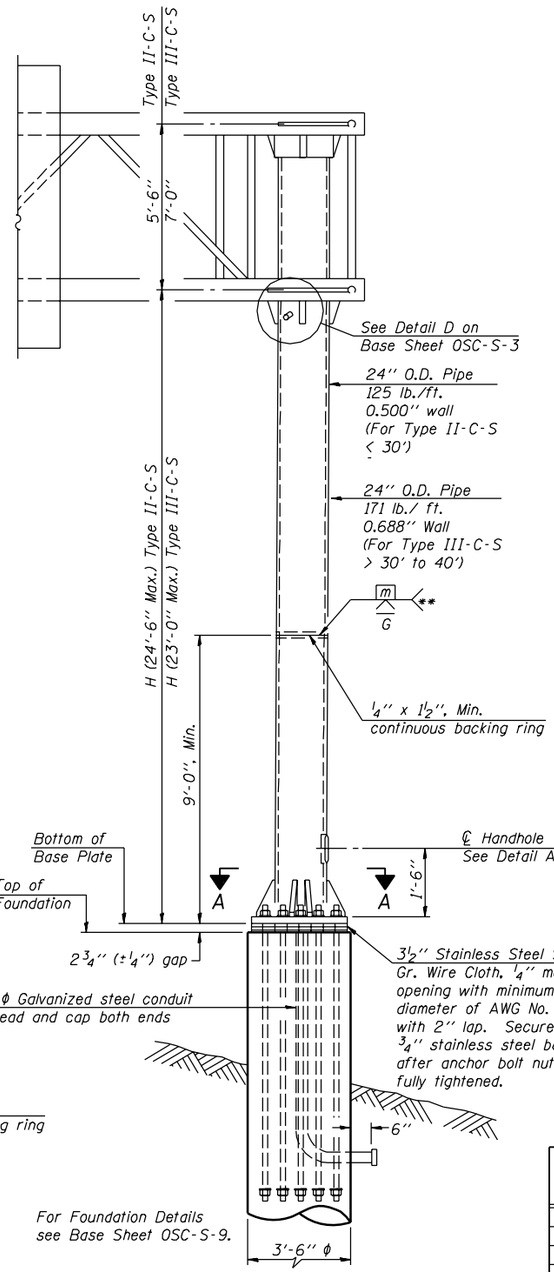
SECTION A-A



SECTION B-B

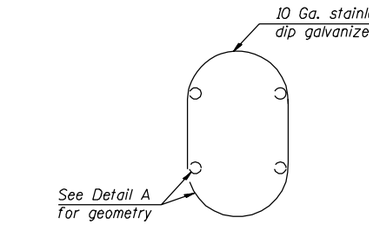


DETAIL B
(Typical rib)

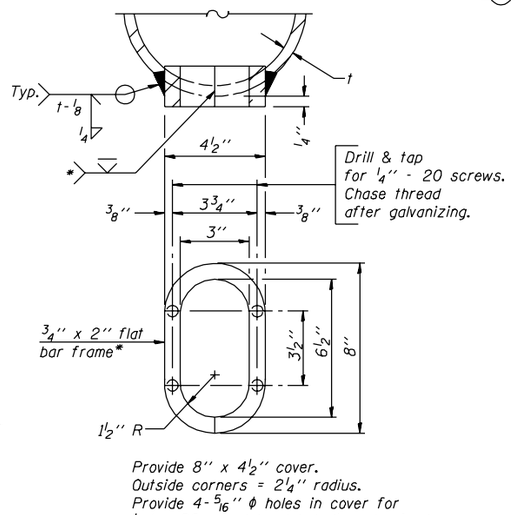


For Foundation Details see Base Sheet OSC-S-9.

FRONT ELEVATION



HANDHOLE COVER



Provide 8'' x 4 1/2'' cover.
Outside corners = 2 1/4'' radius.
Provide 4- 5/16'' ϕ holes in cover for 1/4'' - 20 round head hot dip galvanized or stainless steel machine screws.
(See cover details)

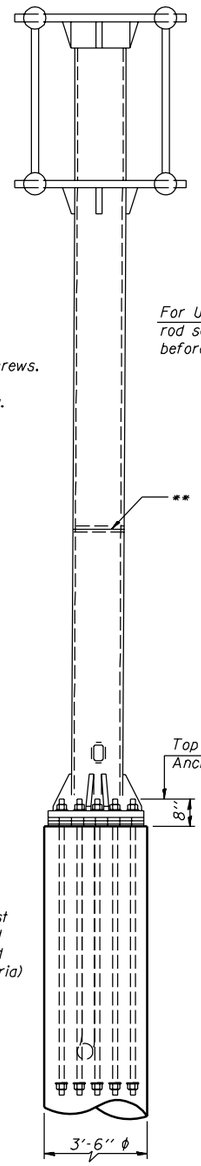
DETAIL A

Bent bars may be butt welded top and bottom or bottom only. In lieu of fabricated handhole frame as shown, may cut from 2'' plate (rolling direction vertical). All cut faces to be ground to ANSI Roughness of 500 μin or less.

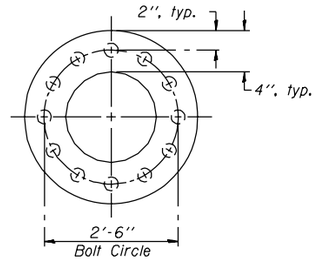
Butt welded joint in post is only allowed for post heights (H) over 20 ft. in length. If used, weld procedure must be preapproved by Engineer and joint shall receive 100% RT or UT (tension criteria) at Contractor's expense.

Structure Number	Station	H

Note: "H" based on 15'-0'' or actual sign height, whichever is greater.



SIDE ELEVATION



SUGGESTED POSITIONING PLATE

For UT, grind top of rod square and smooth before galvanizing.

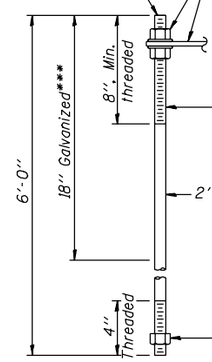
Utilize positioning plate and temporary nuts with leveling nuts or other Engineer approved methods to maintain anchor bolts' alignment during concrete placement. Plate, extra nuts and other positioning aids become Contractor's property. Cost included in "Drilled Shaft Concrete Foundations".

Protect threads during concreting with tape, sleeves, or other means.

*** 18'' is minimum to be galvanized. Entire rod may be galvanized at Contractor's option.

All Thread = NC (National Coarse)

Provide 1 uncoated nut per rod. Deform thread or use chemical thread lock to secure.



ANCHOR ROD DETAIL

Anchor rods shall conform to AASHTO M314 Grade 55 or 105 and meet Charpy V-Notch (CVN) energy of 15 lb.-ft. at 10° F. before galvanizing. Galvanize the upper 18'' (minimum***) and associated M291, Grade A, C or DH heavy hex nuts and hardened washers per AASHTO M232. No welding shall be permitted on rods. Provide an unfinished nut at bottom, a hexagon locknut and washer above base plate and a leveling nut and washer below base plate. Nuts shall each be tightened with 200 lb.-ft. minimum torque against base plate. Before or after threading, but before galvanizing, each anchor rod shall be ultrasonically tested (UT) by a Level II or III inspector, qualified in accord with ANSI guidelines, using a straight beam, 1/2'' ϕ 3.5 mhz. transducer, to insure no rejectable flaws exist in the upper 18'' (tension criteria). Cost of testing included in Drilled Shaft Concrete Foundations.

DESIGNED	-
CHECKED	-
DRAWN	-
CHECKED	-

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

NUMBER	REVISION	DATE

CANTILEVER SIGN STRUCTURES
TYPE II-C-S & III-C-S TRUSS SUPPORT POST
STEEL TRUSS & STEEL POST

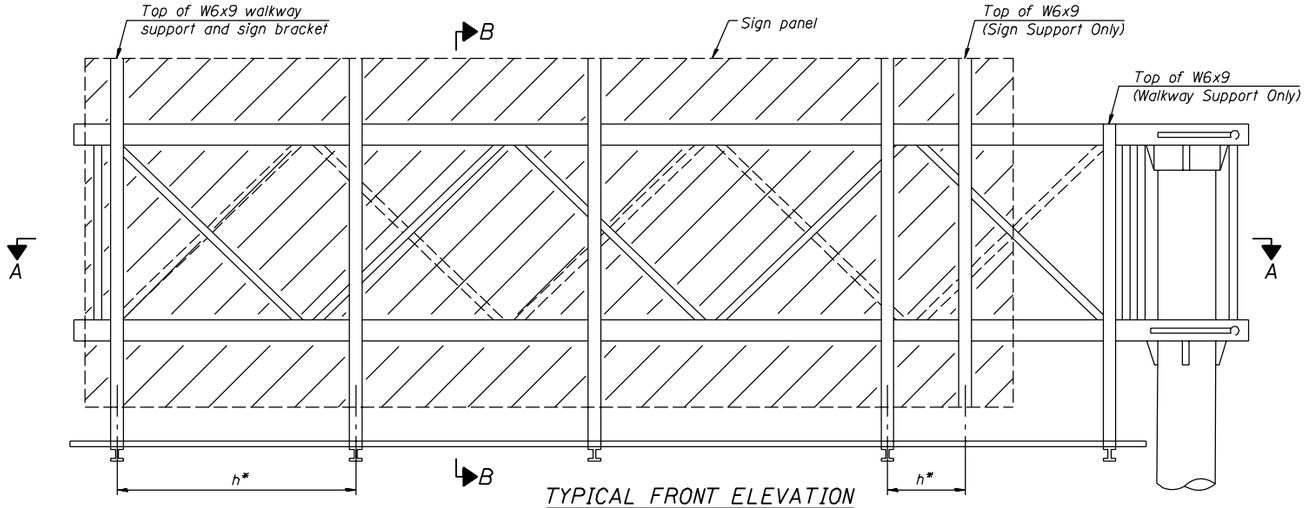
OSC-S-5 7/01/2006

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

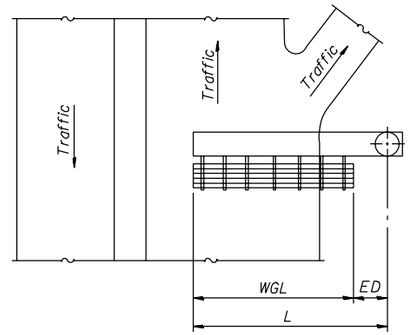
SHEET NO. -
- SHEETS

Contract #



TYPICAL FRONT ELEVATION

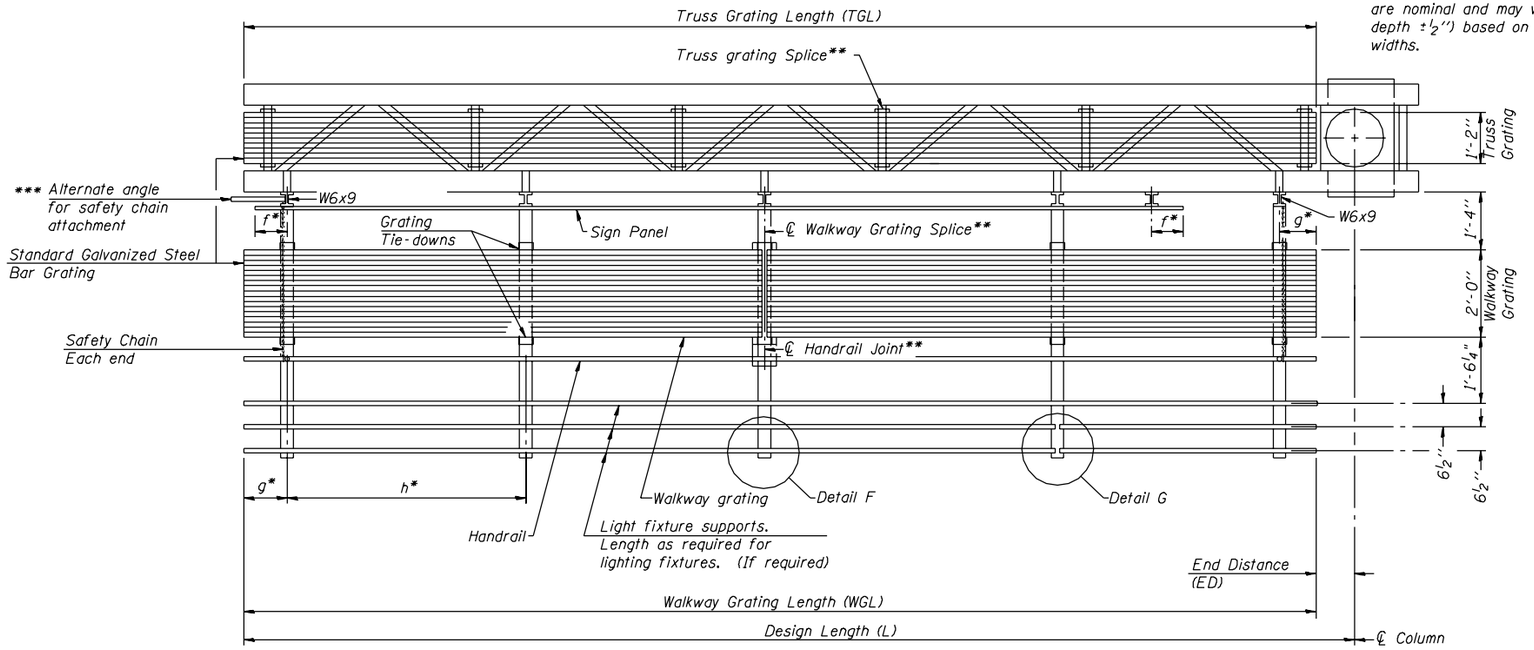
With lights and handrail omitted for clarity.



PLAN
WALKWAY AND HANDRAIL SKETCH

(Road plan beneath truss varies)

Walkway and truss grating dimensions are nominal and may vary (width ± ½", depth ± ½") based on available standard widths.



SECTION A-A

Truss grating to facilitate inspection shall run full length of cantilevers. Cost of truss grating is included in "Overhead Sign Structure Cantilever".

Handrail and walkway grating shall span a minimum of three brackets between splices.
** Use and location of handrail joints or grating splices are optional, based on lengths needed and material availability.

$$TGL = L - \left(\frac{\text{Post O.D.}}{2} + 6''\right)$$

Structure Number	Station	WGL	ED	TGL

Notes:
* Space walkway brackets and sign brackets W6x9 for efficiency and within limits shown:

f = 12" maximum, 4" minimum (End of sign to ℄ of nearest bracket)
g = 12" maximum, 4" minimum (End of walkway to ℄ of nearest bracket)
h = 6'-0" maximum (℄ to ℄ sign and/or walkway support brackets, W6x9)

*** If walkway bracket at safety chain location is behind sign, add angle to bracket. See alternate safety chain attachment on base sheet OSC-S-8.
For details of sign placement, sign/walkway brackets, truss and walkway gratings, grating splices and Section B-B, see Base Sheet OSC-S-7.
For details of handrail, handrail joint, safety chain and Details F and G, see Base Sheet OSC-S-8.

BRACKET TABLE

W6x9		
Sign Width		Number Brackets Required
Greater Than	Less Than or Equal To	
	10'-0"	2
10'-0"	16'-0"	3
16'-0"	22'-0"	4
22'-0"	28'-0"	5
28'-0"	34'-0"	6

NUMBER	REVISION	DATE

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

OSC-S-6 7/01/2006

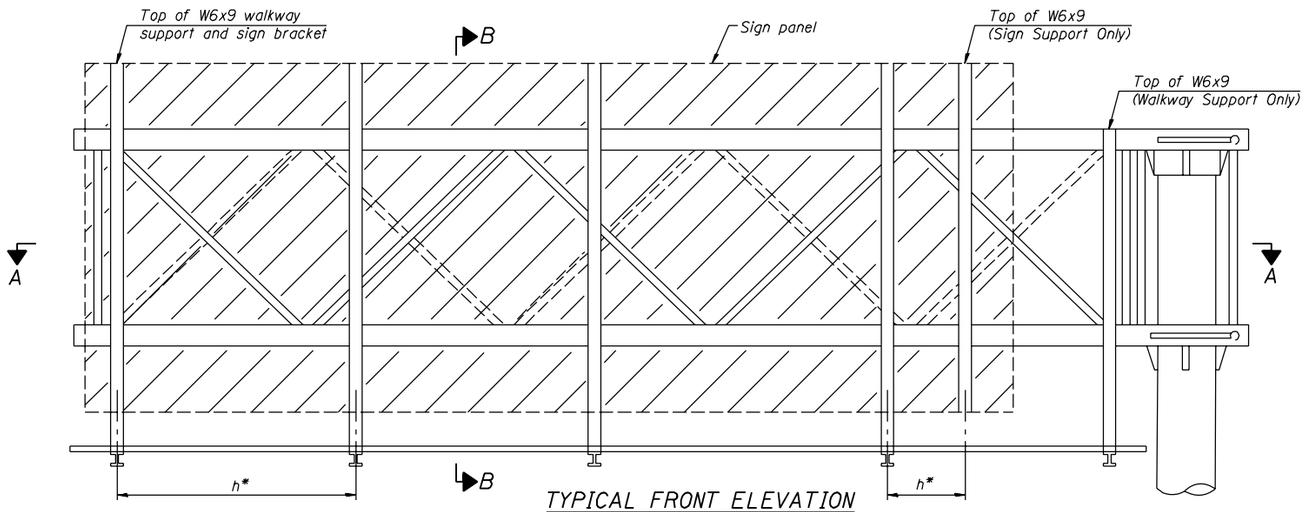
CANTILEVER SIGN STRUCTURES
WALKWAY DETAILS
STEEL TRUSS & STEEL POST

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

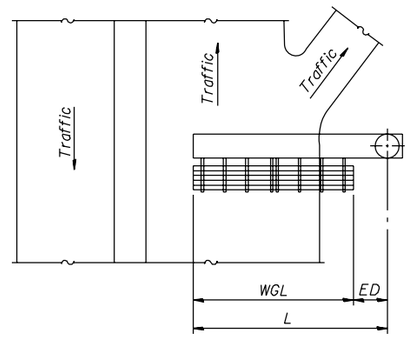
SHEET NO. -
- SHEETS

Contract #



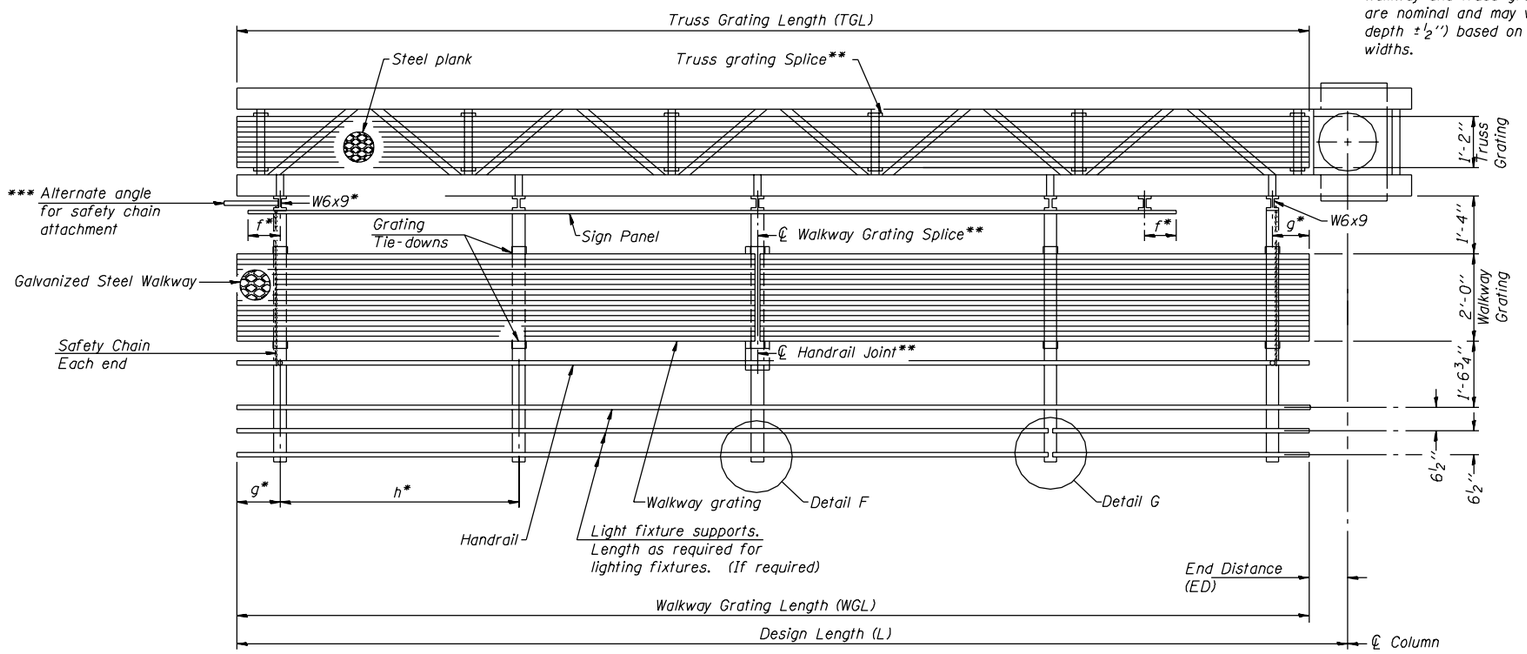
TYPICAL FRONT ELEVATION

With lights and handrail omitted for clarity.



PLAN
WALKWAY AND HANDRAIL SKETCH

(Road plan beneath truss varies)



SECTION A-A

Truss grating to facilitate inspection shall run full length of cantilevers. Cost of truss grating is included in "Overhead Sign Structure Cantilever".

Handrail and walkway grating shall span a minimum of three brackets between splices.
** Use and location of handrail joints or grating splices are optional, based on lengths needed and material availability.

$$TGL = L - (\frac{\text{Post O.D.}}{2} + 6'')$$

Walkway and truss grating dimensions are nominal and may vary (width ±½", depth ±½") based on available standard widths.

Structure Number	Station	WGL	ED	TGL

Notes:
* Space walkway brackets and sign brackets W6x9 for efficiency and within limits shown:

f = 12" maximum, 4" minimum (End of sign to ℄ of nearest bracket)
g = 12" maximum, 4" minimum (End of walkway to ℄ of nearest bracket)
h = 6'-0" maximum (℄ to ℄ sign and/or walkway support brackets, W6x9)

*** If walkway bracket at safety chain location is behind sign, add angle to bracket. See alternate safety chain attachment on base sheet OSC-S-8.
For details of sign placement, sign/walkway brackets, truss and walkway gratings, grating splices and Section B-B, see Base Sheet OSC-S-7S.
For details of handrail, handrail joint, safety chain and Details F and G, see Base Sheet OSC-S-8.

BRACKET TABLE

W6x9		
Sign Width		Number Brackets Required
Greater Than	Less Than or Equal To	
	8'-0"	2
8'-0"	14'-0"	3
14'-0"	20'-0"	4
20'-0"	26'-0"	5
26'-0"	32'-0"	6

NUMBER	REVISION	DATE

DESIGNED -	
CHECKED -	
DRAWN -	
CHECKED -	

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

OSC-S-6S 7/01/2006

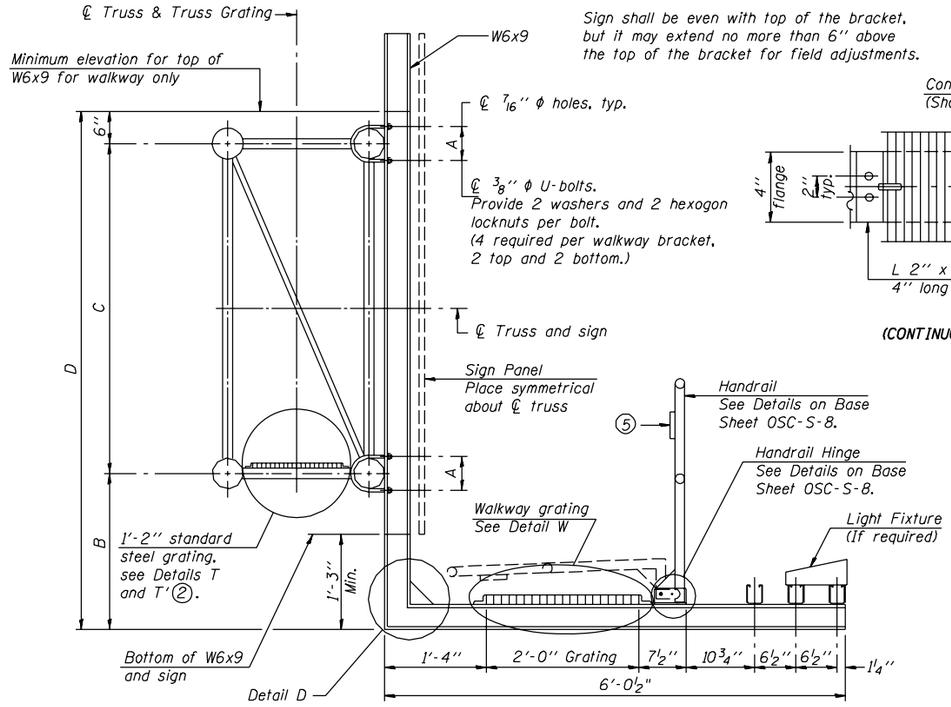
CANTILEVER SIGN STRUCTURES
ALTERNATE STEEL WALKWAY DETAILS
STEEL TRUSS & STEEL POST

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

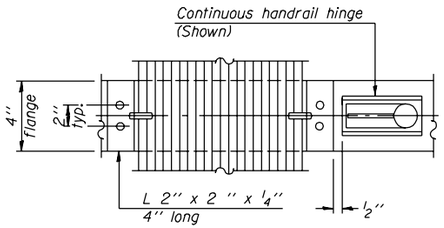
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

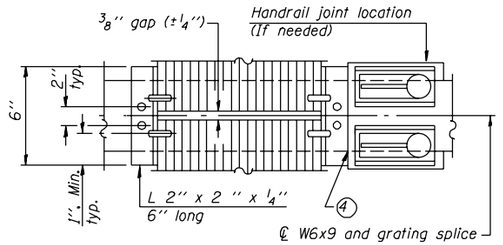
Contract #



SECTION B-B



(CONTINUOUS WALKWAY GRATING)



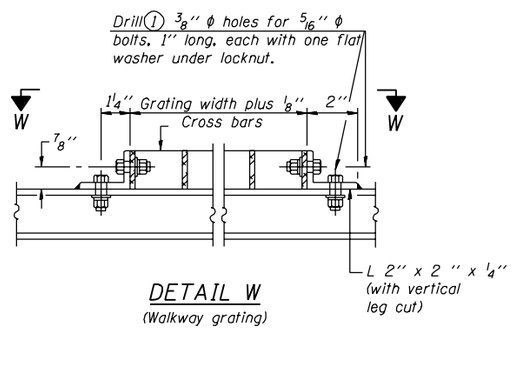
(AT WALKWAY GRATING SPLICE)

SECTION W-W

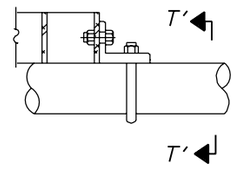
BAR SIZES FOR STANDARD STEEL GRATING

TRUSS GRATING — Main bearing bars 3/16'' x 1 1/2'' on 1 3/16'' centers. Cross bars 3/16'' x 1 1/2'' on 4'' centers.

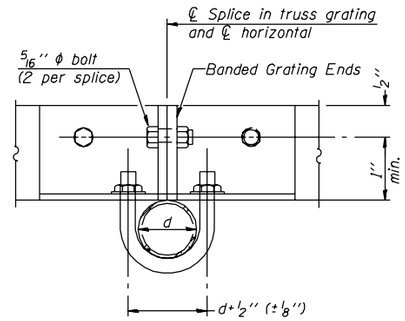
WALKWAY GRATING — Main bearing bars 3/16'' x 1 1/2'' on 1 3/16'' centers. Cross bars 3/16'' x 1 1/2'' on 4'' centers.



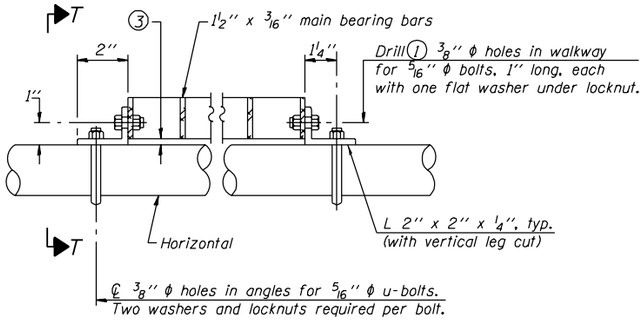
DETAIL W
(Walkway grating)



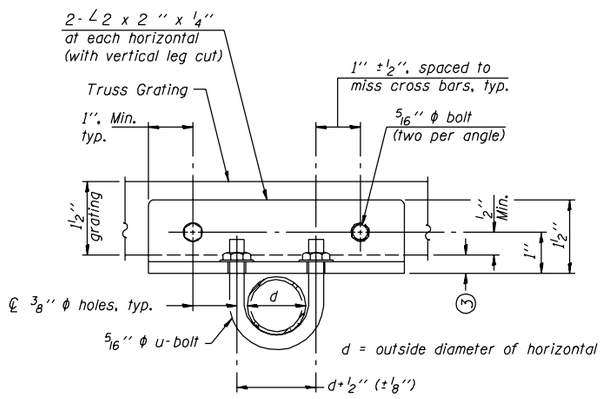
DETAIL T'
(Truss grating splice)
Details not shown same as Detail T.
Alternate materials may be used subject to the Engineer's review and approval.



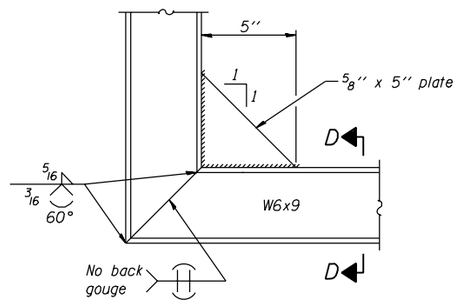
SECTION T'-T'



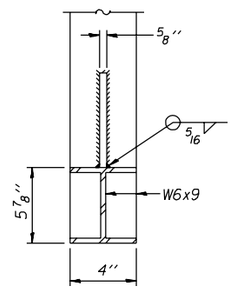
DETAIL T
(Truss grating at horizontal)



SECTION T-T



DETAIL D



SECTION D-D

NUMBER	REVISION	DATE

DESIGNED	-
CHECKED	-
DRAWN	-
CHECKED	-

- 200
EXAMINED
ENGINEER OF BRIDGE DESIGN
PASSED
ENGINEER OF BRIDGES AND STRUCTURES

OSC-S-7 7/01/2006

(1) Drilling holes in grating may be done in shop or field, based on Contractor's preference and subject to accurate alignment.

(2) When truss grating must be spliced, use suggested detail or other methods subject to the Engineer's review and approval. Locate splice to avoid interference between cross bars and bolt locations.

(3) Tube to grating gap may vary from 0 to 1/2" (max.) to align walkway, allow for camber, etc.

(4) If Handrail Joint present, weld angle to W6x9 and 1/4" extension bars. (See Base Sheet OSC-S-8)

(5) PL 1/8" x 1/2" x 2" welded to handrail posts to protect locations that contact grating.

Structure Number	Station	A	B	C	D

CANTILEVER SIGN STRUCTURES
WALKWAY DETAILS
STEEL TRUSS & STEEL POST

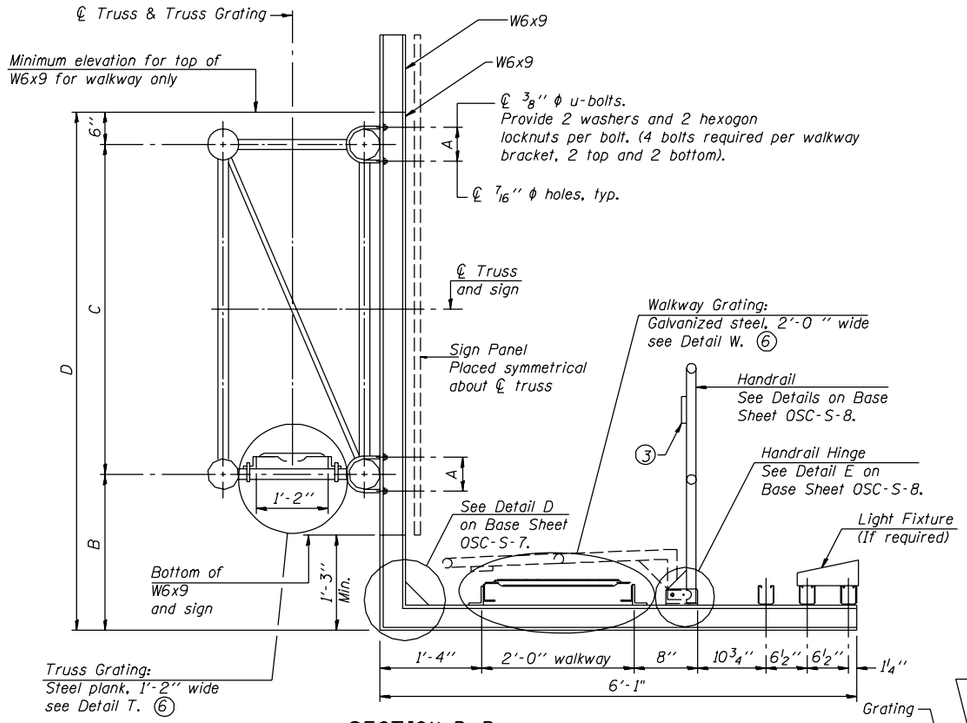
Sign shall be even with top of the bracket, but it may extend no more than 6'' above the top of the bracket for field adjustments.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

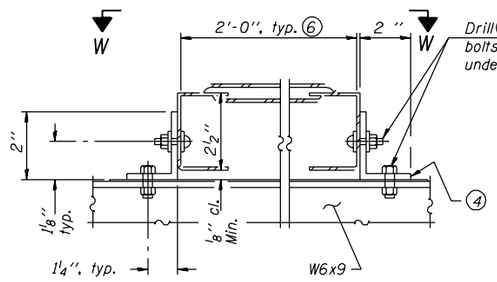
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS

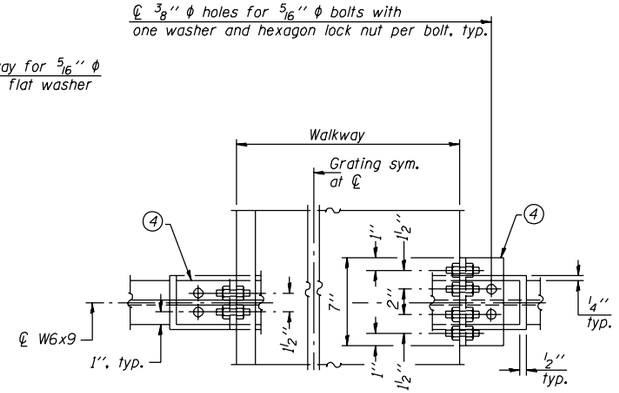
Contract #



SECTION B-B

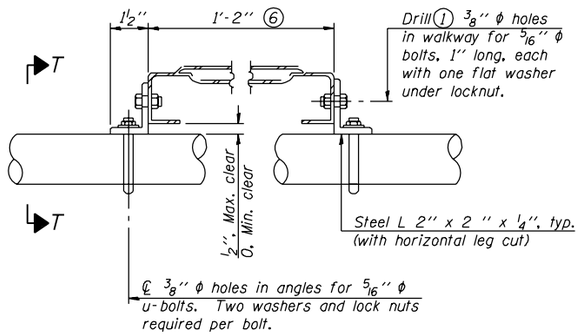


DETAIL W
GALVANIZED STEEL WALKWAY GRATING

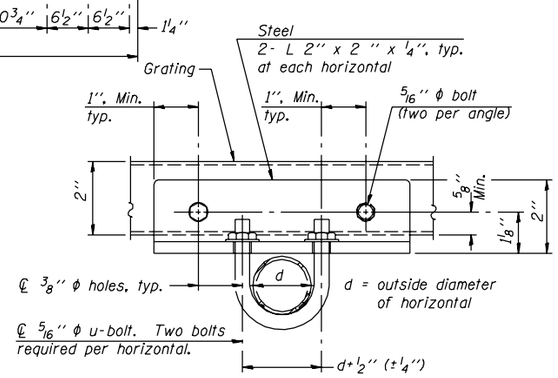


WALKWAY GRATING CONTINUOUS AT WALKWAY GRATING SPLICE

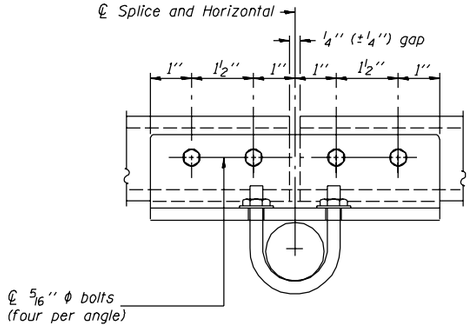
SECTION W-W



DETAIL T
(Truss Grating at Horizontal)



SECTION T-T
(Truss Grating Continuous)



SECTION T-T
(Truss grating splice)
Details not shown same as Section T-T. Alternate splice details and locations may be used subject to the Engineer's review and approval.

1. Drilling holes in grating may be done in shop or field, based on Contractor's preference and subject to accurate alignment.
2. When truss grating must be spliced, use suggested details or other methods in accord with grating manufacturer's recommendation and subject to the Engineer's review and approval.
3. PL 1/8" x 1/2" x 2" welded to handrail posts to protect locations that contact grating.
4. Galvanized steel L 2'' x 2 '' x 1/4'', 3 1/2'' long with continuous grating 7'' long at grating splice.
5. Details shown are considered equal alternatives to Standard Steel Walkway Details and may be substituted by Contractor at no charge in contract cost.
6. Perforated or expanded metal grating providing a skid resistant (non-serrated) surface and capable of supporting a 500 pound concentrated load with a 6'-0'' clear span. Walkway and truss grating dimensions are nominal and may vary (width ±1/2'', depth ±1/2'') based on available standard sizes. Cut ends of grating shall be free of burrs or hazardous projections and coated with zinc-rich primer or equivalent.

STEEL TRUSS GRATING

Structure Number	Station	A	B	C	D

CANTILEVER SIGN STRUCTURES
ALTERNATE WALKWAY DETAILS

DESIGNED	-
CHECKED	-
DRAWN	-
CHECKED	-

- 200
EXAMINED
ENGINEER OF BRIDGE DESIGN
PASSED
ENGINEER OF BRIDGES AND STRUCTURES

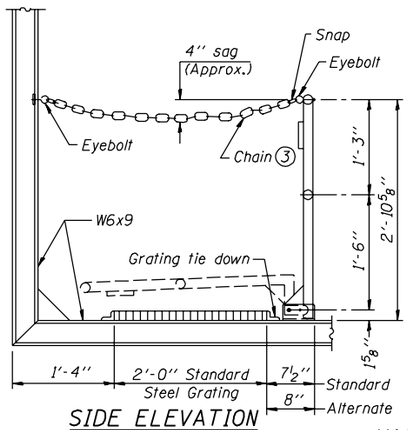
NUMBER	REVISION	DATE

OSC-S-7S 7/01/2006

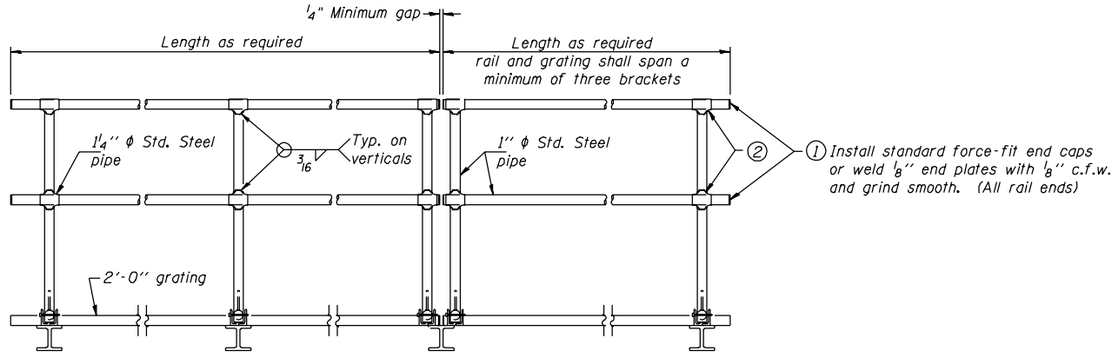
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. -
- SHEETS
Contract #



SIDE ELEVATION
(Showing Safety Chain W/O Sign)

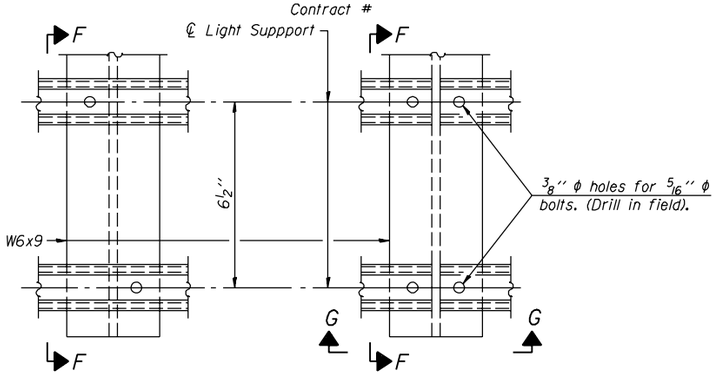


(1) Install standard force-fit end caps or weld 1/8" end plates with 1/8" c.f.w. and grind smooth. (All rail ends)

FRONT ELEVATION

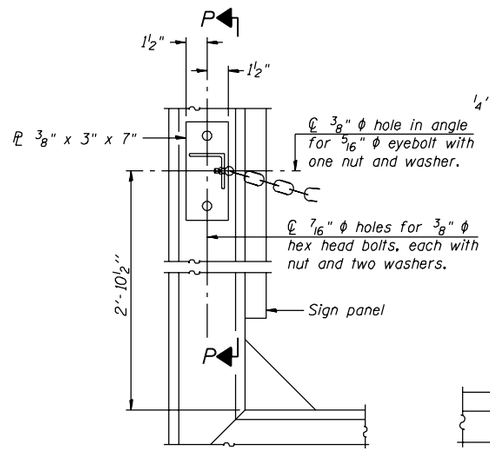
(2) Horizontal handrail member shall be continuous thru 1 1/4"ϕ pipe. Provide 7/16" ϕ hole in 1 1/4"ϕ pipe for 3/8" ϕ bolt. Field drill 7/16" ϕ hole in horizontal rail member. Provide washer and locknut for bolt. (Use 5/16" eyebolts in 7/16" ϕ holes on top rail at ends only.)

HANDRAIL DETAILS

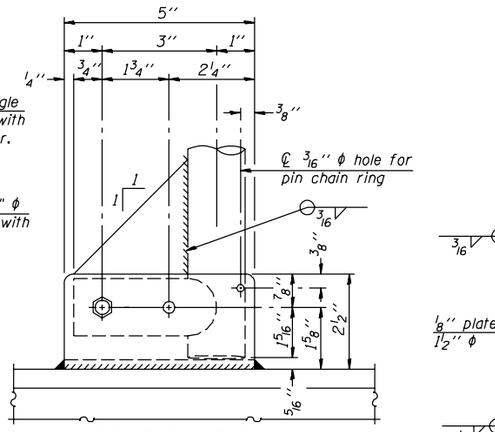


DETAIL F

DETAIL G

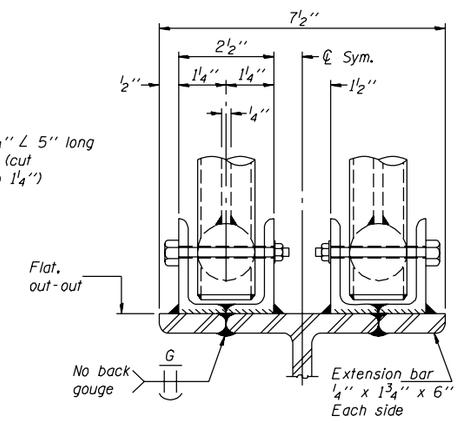


ALTERNATE SAFETY CHAIN ATTACHMENT
(With Sign Present)
Items not shown same as "Side Elevation" of "Handrail Details"

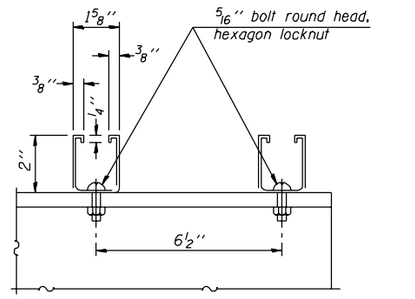


SIDE ELEVATION

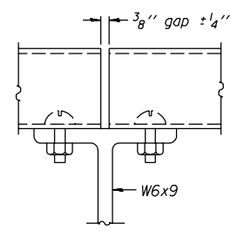
FRONT ELEVATION
Details not shown same as "ELEVATION" at right.



ELEVATION AT HANDRAIL JOINT
Details not shown same as "FRONT ELEVATION"



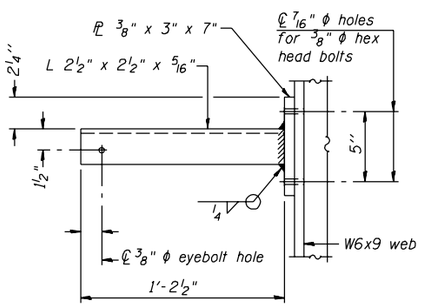
SECTION F-F



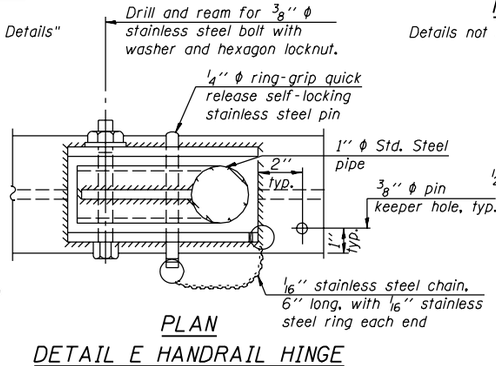
SECTION G-G

LIGHTING FIXTURE MOUNTS (IF REQUIRED)

(4) Field cut ends of light support channels shall be free of burrs or hazardous projections and coated with zinc-rich primer or equivalent.

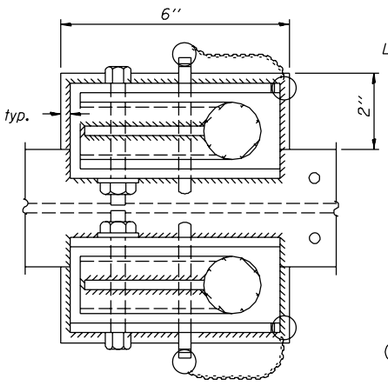


SECTION P-P

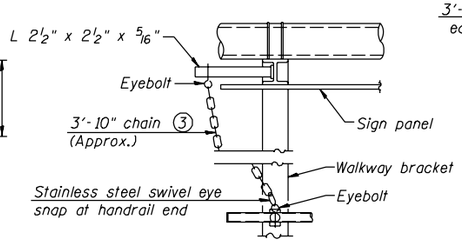


PLAN

DETAIL E HANDRAIL HINGE

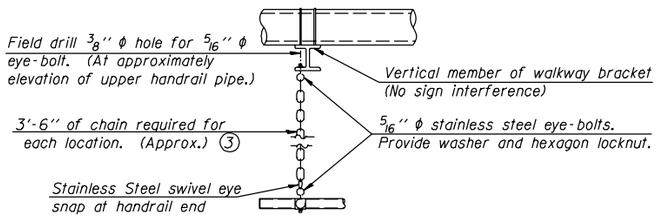


PLAN AT HANDRAIL JOINT
Details not shown same as "PLAN"



ALTERNATE SAFETY CHAIN ATTACHMENT
Details not shown similar to "Safety Chain" Details
(Walkway omitted for clarity)

(3) 3/16" Type 304L Stainless steel chain, approximately 12 links per foot.



SAFETY CHAIN
One required for each end of each walkway.

CANTILEVER SIGN STRUCTURES
HANDRAIL DETAILS
STEEL TRUSS & STEEL POST

DESIGNED	-
CHECKED	-
DRAWN	-
CHECKED	-

- 200
EXAMINED
ENGINEER OF BRIDGE DESIGN
PASSED
ENGINEER OF BRIDGES AND STRUCTURES

NUMBER	REVISION	DATE

OSC-S-8 7/01/2006

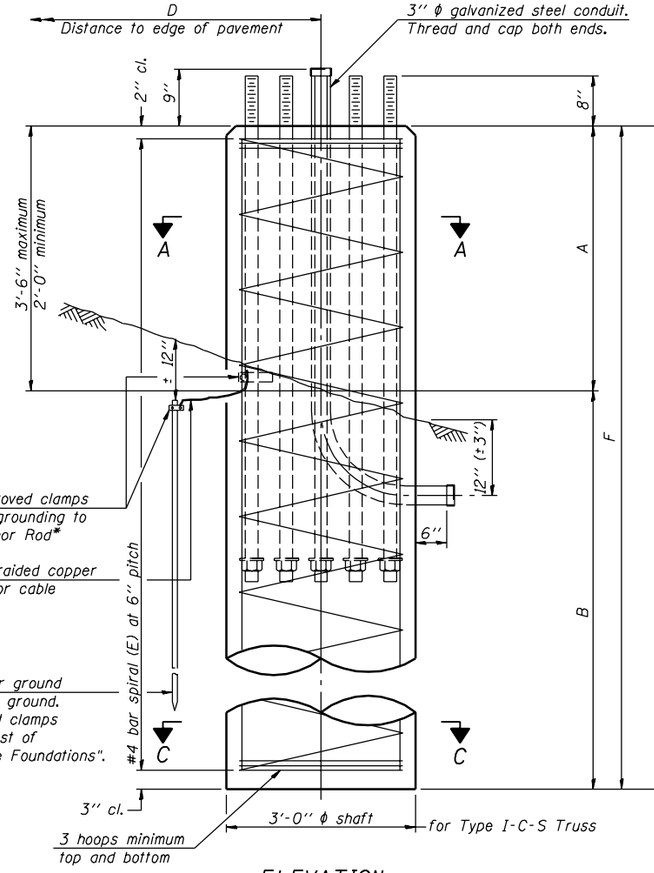
* Grind anchor rod to bright finish at ground clamp location before installing clamp.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

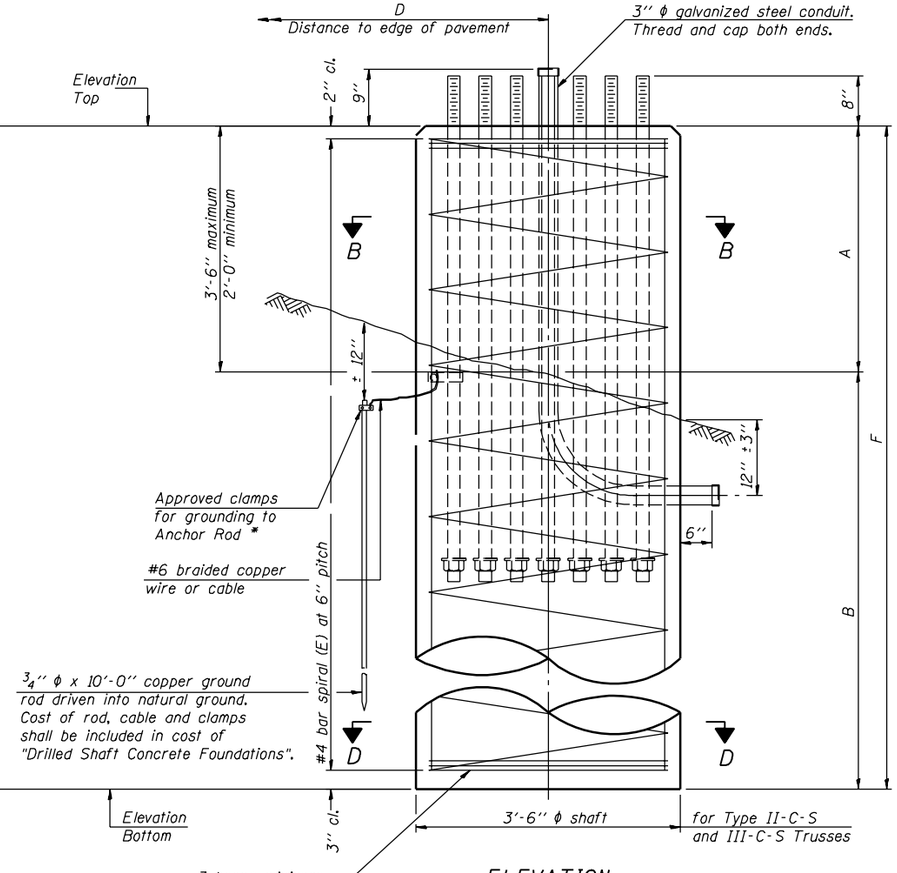
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
-	-	-		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. - - SHEETS

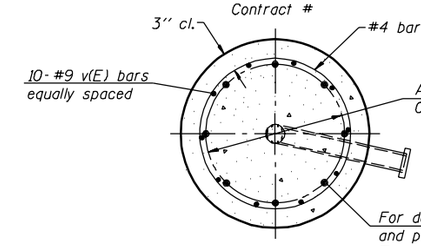
Contract #



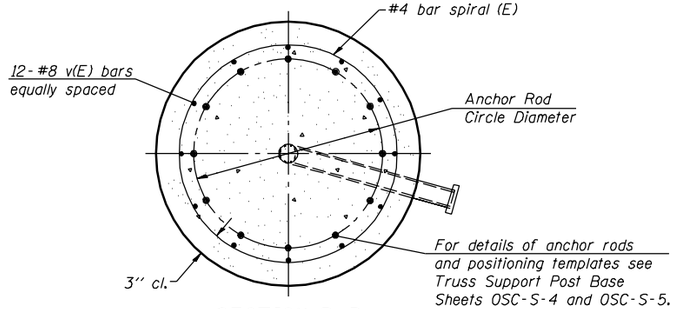
ELEVATION



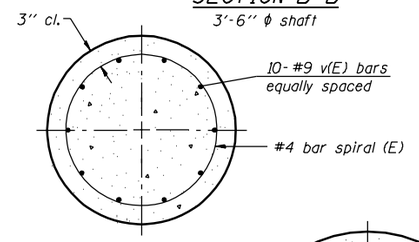
ELEVATION



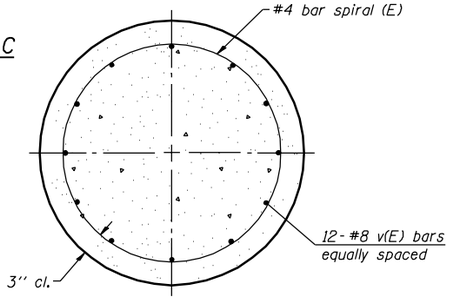
SECTION A-A
3'-0" ϕ shaft



SECTION B-B
3'-6" ϕ shaft



SECTION C-C
3'-0" ϕ shaft



SECTION D-D
3'-6" ϕ shaft

NOTES:

The foundation details shown are based on common cohesive soil conditions (silty or sandy clay) with an average Qu $\geq$ 1.25 ton/sq. ft. for all strata within the "B" portion of the foundation. "Qu", the soil's unconfined compressive strength, shall be determined by the Engineer from either hand penetrometer readings during construction or previous soil investigations at the site. For lower soil strengths or different soil types, the Engineer shall review pertinent data and determine any required revisions to the diameter, depth, reinforcement or configuration of the foundation. If changes are required by the Engineer, or if dimensions "B" and "F" are increased more than 12" by the Contractor, "as-built" plans shall be prepared and submitted to the District Bureau of Operations for future reference. Actual "B", "Elevation Bottom", and average"Qu" values shall also be entered in the table on this sheet for permanent reference.

No sonotubes or decomposable forms shall be used below the lower conduit entrance. Permanent metal forms or other shielding may not be left in place below that elevation without the Engineers' written permission. Excavations shall be dewatered before concrete placement if directed by the Engineer at no additional cost.

Concrete shall be placed monolithically, without construction joints.

Backfill shall be placed per Article 502 of Standard Specification and prior to erection of support column.

A normal surface finish followed by a Bridge Seat Sealer application will be required on concrete surfaces above the lowest elevation 6" below finished ground line. Cost included in Drilled Shaft Concrete Foundation.

Structure Number	Station	Truss Type	Shaft Diameter	Elevation Top	Elevation Bottom	Qu	A	B	F	Class SI Concrete Cubic Yards

F = A * B

FOUNDATION DATA								
Truss Type	Post Base Sheet	Maximum CantileverLength (ft)	Maximum Total Sign Area (sq ft)	Shaft Diameter (in)	"B" Depth (ft)	Anchor Rods No.	Anchor Rods Diameter (in)	Anchor Rod Circle Diameter (in)
I-C-S	OSC-S-4	25	170	3.0	15.5	8	2	22
II-C-S	OSC-S-5	30	170	3.5	15.0	12	2	30
II-C-S	OSC-S-5	30	340	3.5	21.5	12	2	30
III-C-S	OSC-S-5	35	170	3.5	19.0	12	2	30
III-C-S	OSC-S-5	35	250	3.5	22.5	12	2	30
III-C-S	OSC-S-5	35	400	3.5	26.5	12	2	30
III-C-S	OSC-S-5	40	400	3.5	30.0	12	2	30

CANTILEVER SIGN STRUCTURES
DRILLED SHAFT
STEEL TRUSS & STEEL POST

DESIGNED	-
CHECKED	-
DRAWN	-
CHECKED	-

\- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

NUMBER	REVISION	DATE

OSC-S-9 7/01/2006